Geologic Resource Management

Recognizing the interrelationships between the abiotic (geology, air, and water) and biotic (plants and animals) components of the Earth is vital to understanding, managing, and protecting natural resources. The Geologic Resource Evaluation Program helps make this connection by emphasizing the role of geology and geologic resource management in parks.

Geologic resource management includes both the processes that act upon the earth and the features and products formed as a result of these processes.

- Geologic processes include erosion and sedimentation, seismic and volcanic activity, glaciation, rockfalls, landslides, and other earth processes.
- Geologic features include minerals, rocks, fossils, cave and karst systems, coastlines, dunes, glaciers, volcanoes, faults, landforms, and many other geologic structures.

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*For additional information see:
http://www2.nature.nps.gov/geology/inventory/

Geologic Resource Evaluation Program

Geologic resources serve as the foundation of park ecosystems and provide important information needed for park decision making. Helping parks to understand the role that geology plays in the environment is a core function of the Geologic Resource Evaluation Program.

Purpose

The Geologic Resource Evaluation (GRE) Program strives to advance science based management of natural resources in the National Park Service. The GRE program further aims to raise awareness about geology and the roles that geologic features and processes play in the environment. These goals are accomplished through the inventory of geologic resources and the development of park specific geologic products. This program is administered by the NPS Geologic Resources Division and is intended to serve natural resource managers and staff, park planners, interpreters, researchers, and other NPS personnel.

Inventory

The GRE team holds scoping meetings at parks to inventory and review available data on park geology and to discuss geologic issues. Through this process the team evaluates the extent and quality of existing geologic maps and park-specific geologic resource management issues. Meeting participants include the park superintendent and staff, U.S. Geological Survey geologists, state survey geologists, academic and private sector geologists, and other interested parties.

Products

The GRE program, in cooperation with a variety of partners, provides each of the 272 natural area parks with a digital geologic map, a park specific geologic report, and a geologic bibliography. Each of these products support the stewardship of park resources by providing valuable information about geologic formations, hazards, and potential links between geology and other natural resources. These products are designed for use by a wide variety of audiences.

Digital Geologic Maps

Digitizing geologic maps facilitates the incorporation of geologic considerations into a wide range of applications. Examples include:

- Capitol Reef NP uses digital geologic maps and GIS to locate endangered cacti which are known to prefer growing on a specific geologic formation.
- Colorado NM is using digital geologic information to reconstruct the region's fire history by examining charcoal rich sediments.
- Padre Island NS uses a geologic landform layer as the basis for their digital vegetation and soils maps.
- Yosemite NP uses a digital geologic layer which identifies rock fall hazard zones for planning and facility siting.

Completed digital geologic maps can be found on the Internet at: http://science.nature.nps.gov/nrftp.

Geologic Resource Evaluation Reports

GRE reports identify:

- Geologic features and processes that are important to park ecosystems and management.
- The impact human activities have on geologic features and processes.
- Geologic research and monitoring needs.
- Opportunities for education and interpretation.

Geologic Bibliography

The bibliography is a park specific reference source for geologic reading, investigation, and research. This product is currently under development and will be available through the Inventory and Monitoring Program's website: http://science.nature.nps.gov/im.